National Transportation Safety Board

DCA15FR016

Burlington Northern Santa Fe

Derailment
Lesterville, SD
September 19,2015

Operations Party Members:

January 11, 2016

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Synopsis of Accident

On September 19, 2015 BNSF eastbound train G-MNXDPK7-17A, loaded ethanol train, derailed six cars at 6:18 a.m. central daylight time at MP 596.7 on the Aberdeen Subdivision of the Twin Cities Division near Lesterville, SD. The territory is non-signaled single track and the method of operation is Track Warrant Control (TWC). G-MNXDPK7-17 originated in Mina, SD and was destined for Deer Park, TX. The train had 3 Locomotives, 2 in the lead and one rear end DP locomotive, 98 loads, 0 empties, 12,585 tons, 6,044 ft. in length. Two of the loads were sand buffer cars, one on each end of the train, the remainder of railroad cars in the train consisted of tank cars loaded with ethanol. Locomotive event recorder showed the train speed as 10 mph at time of derailment, and there were no changes in the throttle position prior to the derailment. The seven cars that derailed were lines 2 thru 8 behind the cover car on head of train. Three of the derailed cars were breached and released product that caught fire. There were no injuries to train crew or the public, no evacuations were necessary.

All times in this report are central daylight time unless otherwise noted.

Accident Narrative

The train crew of the G-MNXDPK7-17A east included a conductor and a locomotive engineer. The conductor went on duty at 245 am CDT, and the locomotive engineer went on duty at 0330 am on September 19, 2015 in Sioux, City, Iowa. The engineer and conductor had the FRA mandatory required rest prior to going on duty.

Their assigned freight train consisted of two locomotives on the head end of train, one on DPU locomotive on the rear. 98 loads, 0 empties, 12,585 tons, 6,044 ft. long. G-MNXDPK7-17 originated in Mina, SD and was destined for Deer Park, TX, with no scheduled work enroute.

The train crew deadheaded from Sioux City, Iowa to Scotland Station located at railroad MP 602.3. The train crew took charge of the loaded ethanol unit train GMNXDPK7-17A. At Scotland station train crew released handbrakes on cars and locomotives, called BNSF train dispatcher to get TWC authority to proceed timetable east. BNSF Train Dispatcher grants TWC Authority to crew to proceed east at 0540 am September 19, 2015, from mile post 605 to mile post 566. According to event recorder data train departed Scotland station at 0543 am. Upon departure train was operating under a 10 mph speed restriction between mile post 600.8 and mile post 587.9 that was listed on train crew's General Track Bulletins.

Maximum timetable speed for this segment of track is 25 mph. However there was a speed restriction of 10 mph issued by a General Track Bulletin that superseded the timetable.

According to train crew trip was uneventful, with the exception of heavy fog and poor visibility, sight distance was between 50 to 100 feet. Outboard facing camera on lead locomotive BNSF4736 showed heavy fog as train traversed over the Railroad Bridge.

As the eastbound train approached the accident area, the locomotive engineer was seated at the controls on the south side of leading locomotive. The conductor was seated on north side of- (fireman side) of the locomotive**.**

In this area of the railroad in direction of approach (east) the track is tangent with a .41 percent descending grade leading into the bridge at mile post 596.7, and a .38 percent ascending grade leaving the bridge.

According to event recorders data on lead locomotive BNSF4736 and DPU locomotive BNSF4323 indicated both locomotives were in throttle position 2 as train was approaching the Railroad Bridge.

The event recorder data showed the train was operating at 10 mph as it approached the accident area. As train traversed over Railroad Bridge at mile post 597.7 train crew did not hear, see or feel anything out of the ordinary. At 0618 am shortly after headend of train clears Road Bridge;

train experiences an undesired emergency brake application. Event recorder data shows train traveled an additional 80 ft. before coming to rest after experiencing undesired emergency brake application.

Locomotive engineer and conductor stated they became aware of derailment when they both looked back towards the train and noticed that cars had caught fire. Outboard facing camera on BNSF5664 trailing locomotive showed darkness then a glow of light after train came to rest.

According to engineer's interview he dialed 911 on railroad radio key pad on lead locomotive, BNSF train dispatcher responded to emergency tone. Engineer informed BNSF train dispatcher that train had experience an undesired emergency brake application and that some cars were derailed and on fire. After train crew gathered train consists and emergency response paper work they egressed from area to safety.

The engineer stated that local emergency personnel arrived on scene approximately 1 hour and 15 minutes after notifying BNSF train dispatcher of derailment. Train crew offered emergency responders train consist paper work containing emergency response information, but declined to take possession of it.

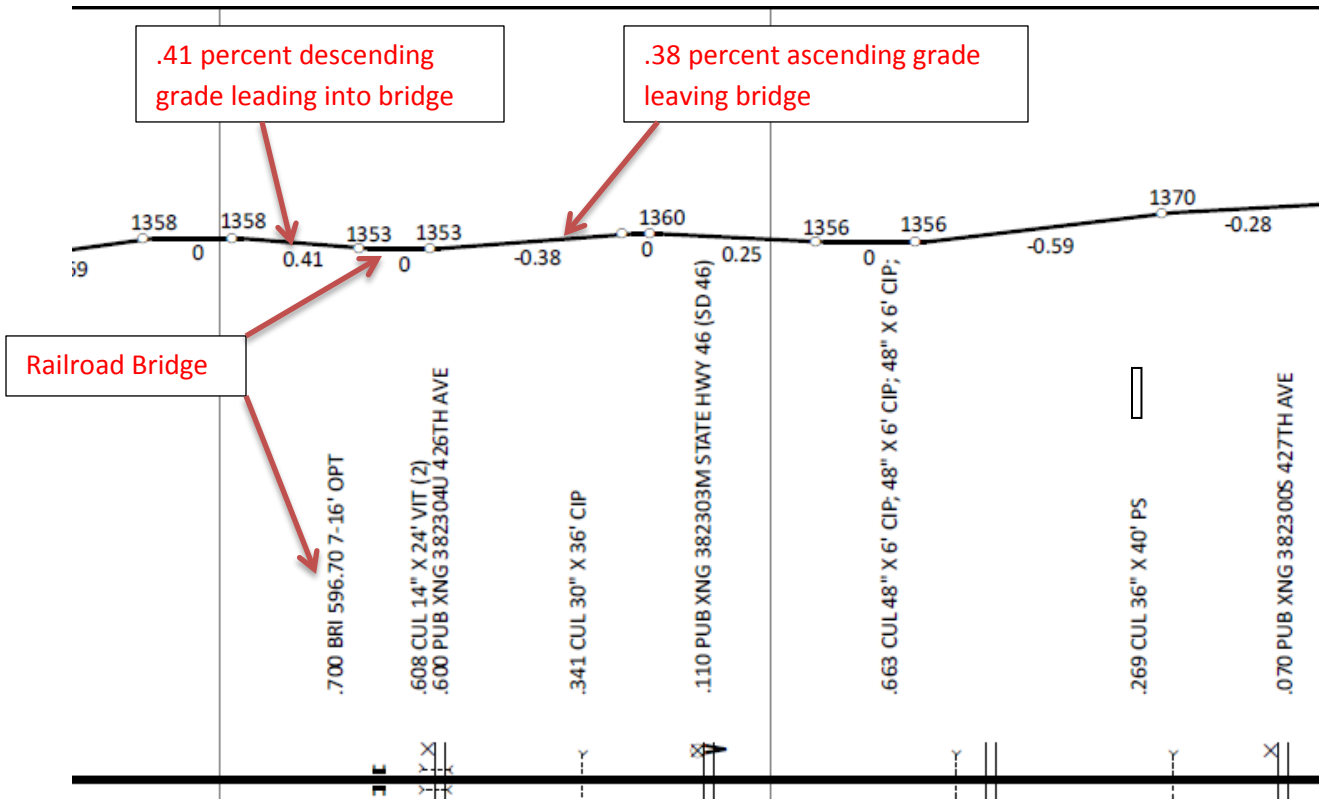
Emergency responders instructed the train crew to move buffer car and locomotives east past the crossing.

Method of Operations

Trains are authorized by Track Warrant Control (TWC). Segment of track on the Aberdeen Subdivision is Dark Territory (non-signaled). Trains are operated on both directions on single main track.

Site Description

At derailment area there is tangent single main track running railroad timetable east and west. Railroad Bridge located at mile post 596.7 on an eastward approach has a 0.41 percent descending grade leading into bridge, leaving bridge there is an ascending grade of 0.38 percent.



Operating Documents

The crews were governed by the General Code of Operating Rules (GCOR) and by Aberdeen Subdivision timetable specific to the subdivision they were operating.

The operating rules and supplements were as follows and provided by BNSF:

- General Code Of Operating Rules, Seventh Edition, Effective April 1, 2010, Updated September 1, 2015
- BNSF System Special Instructions, Effective April 1, 2015
- Timetable Aberdeen Subdivision number 6 September 10, 2015
- TY & E Safety Rules January 1 , 2015
- Track Warrants authorizing the train movements
- General Track Bulletins

Operating Crew

Engineer
Hire Date: 08/22/2008
Engineer Initial Certification date: 10/28/2011
Engineer Expiration Date: 10/28/2017
Hazmat Qualification Date: 02/11/2014

Conductor
Hire Date: 05/23/2011
Conductor Initial Certification date: 09/02/2011
Certification Expiration Date: 09/10/2017
Hazmat Qualification Date: 03/26/2014

Train Consist-

BNSF G-MNXDPK7-17 train had 3 Locomotives, 98 loads, 0 empties, 12,585 tons, 6,044 ft. in length. On the head end of train the lead locomotive was BNSF4736, trailing locomotive BNSF5664. Two of the loads were sand buffers, one on each end of the train between locomotives and loaded ethanol cars. One DPU locomotive BNSF4323 was attached on the rear of train.

Employee Interviews

The Operations Groups conducted 2 interviews of the operating train crew members involved in the accident during the on scene phase of the investigation. A summary of the interviews of the two operating train crew members involved in the accident are below.

Highlights of Engineer Interview

The engineer stated that is was called for an on duty time of 0330 (on his rest) in Sioux City, IA, off the Engineer's Extra Board. His Conductor was on duty at 0245 and they were called for a grain train that was in Mina, SD but the call was changed to dog catch train G MNXDPK7-17 in Scotland, SD. He said he told his Conductor that running on foggy nights was eerie.

The engineer said he hired out with BNSF in 2005 and has worked this territory from the beginning. He described the territory, the Aberdeen Sub, saying, no one likes to run on it

because there are a lot of slow orders, a lot of small hills and a lot of bridges. He stated that an engineer is in and out of the throttle the whole time. He said that when they got on their train that morning that they were already in the 10 mph slow order and they had 10 to 15 slow orders total. He stated the head end of their train was at MP 602.7. He was running with DP, no fence, in 1 or 2 notch as he approached the bridge and estimated his speed at 9 or 10 mph.

When asked to clarify how foggy it was engineer estimated his visibility at ½ to 1 car length. He said he could only barely see the bridge as they approached and reported the ride as the "most smooth" he could ever remember for that bridge because that bridge is notorious for have a kink. After crossing the bridge they went into emergency and felt a lunge forward, like floating, and he immediately called, "emergency, emergency, emergency", on the radio. The Conductor called out that they were on fire, and he told him to get his stuff and get off. He said he toned 911 on the radio but the first one didn't go through, but the second attempt was immediately answered, he reported the derailment and fire and then they got off the train and moved to a safe distance and then used their cell phones to contact the Dispatcher and their managers. He stated, concerning the first 911 tone not being answered, that he can't be sure that he hit the numbers correctly the first time.

Engineer said his last train ride with an Road foremen of Engines was last year and that his certification was current, he later checked his card and corrected himself saying he had a simulator ride on 05/03/15. He thought his last operations test was within the last month. When asked if he had any duty tours over 12 hours in the last 10 days he said, yes, two days prior, it was his first trip coming off of smart rest. He stated that he had adequate rest prior to that trip, and prior to this trip.

Engineer responded to the question of whether or not he thought his training was adequate, yes, we have Safety meetings all the time and they are always emphasizing what we should do in a derailment. He reported that the first Emergency Personnel were on the scene in about 1 to 1.25 hours, he said it was so foggy that they had trouble finding it. He also said they tried to give the Fire Fighters the hazmat paperwork and they didn't want it. All of their paperwork was collected by the Superintendent of Operations. He thought the first BNSF Manager on the scene was the Claims Agent, Nick, about 1.5 to 2 hours after they derailed, but said he didn't remember exactly.

Highlights of Conductor Interview

The conductor stated that he went on duty at 0245 am on September 19. 2015, as soon as he arrived at work got his paper work and reviewed it. Engineer went on duty at on his rest at 0330 am. Departed Sioux City depot about 0345 am., and taxied straight to Scotland to pick up their train. After arrival at Scotland train crew had job briefing, engineer went through the locomotives and released hand brakes while he stayed on the lead locomotives to talk to the train dispatcher and get TWC to proceed east. When engineer got back to the lead locomotive they

had another job briefing on TWC to proceed east, shortly thereafter they departed. When train left Scotland it was entering a 10 mph speed restriction that was listed on the general track bulletins.

The trip was eventful and nothing out of the ordinary to the point of the derailment. After train crew departed Scotland train traveled about seven to eight miles when train experiences an undesired emergency brake application just past the railroad bridge. Conductor Kellen stated that it was foggy and dense; visibility was at fifty to 100 feet. Crew did not experience any severe slack action prior to and during the undesired emergency brake application. Once train came to stop they looked back and saw that train had caught fire.

Engineer dialed 911 on radio key pad to report derailment. Engineer reported to train dispatcher that train derailed and that some cars were on fire.

Train crew left area to a safe location to be able to use cell phone and ask for additional instructions.

When emergency responders arrived approximately 45 minutes after reporting incident to train dispatcher, crew moved locomotives and buffer east across street crossing.

Train crew offered train consists and emergency response paper work to emergency responders but they declined to accept paper work.

Conductor Kellen was asked if he knew how long the 10 mph speed restriction had been in place at that location he stated that since he has been employed which has been about 4 ½ years.

Conductor Kellen stated that he works off the extra board, and the last 4 or 5 previous trips he has gone to work between 0230 am to 430 am.

10-Day Work History of Engineer

	On-Duty Date	On-Duty Time	Off-Duty Date	Off-Duty Time	Movement
1)	Sep 8, 2015	2350	Sep 9, 2015	1040	H-A
2)	Sep 10, 2015	0310	Sep 10, 2015	1230	A-H
3)	Sep 11, 2015	1830	Sep 12, 2015	0530	H-A
4)	Sep 13, 2015	1015	Sep 13, 2015	1915	A-H
5)	Sep 14, 2015	1600	Sep 15, 2015	0420	H-H
6)	Sep 15, 2015	1643	Sep 15, 2015	2345	A-H
7)	Sep 16, 2015	1400	Sep 17, 2015	0100	H-H
8)	Sep 18, 2015	0340	Sep 18, 2015	1530	H-H
9)	Sep 19, 2015	0330	Sep 19, 2015	1321	H-H
10)					

10 Work History of Conductor

	On-Duty Date	On-Duty Time	Off-Duty Date	Off-Duty Time	Movement
1)	Sep 8, 2015	0600	Sep 8, 2015	1645	H-A
2)	Sep 9, 2015	0410	Sep 9, 2015	1618	A-H
3)	Sep 10, 2015	0945	Sep 10, 2015	2040	H-A
4)	Sep 15, 2015	1700	Sep 16, 2015	0145	A-H
5)	Sep 17, 2015	0230	Sep 17, 2015	1330	A-H
6)	Sep 18, 2015	0430	Sep 18, 2015	1400	H-H
7)	Sep 19, 2015	0245	Sep 19, 2015	1321	H-H
8)					

Post-Accident Action Taken By BNSF

Following the derailment BNSF stopped operating ethanol unit trains in the Aberdeen Subdivision. Currently BNSF is operating from one to two manifest trains per day on the Subdivision.